

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A process for hydrocyanating 1,3-butadiene over at least one nickel(0) ~~complex~~ catalyst having phosphorus ligands, the process comprising providing a mixture of ~~as a catalyst, which comprises using the 1,3-butadiene in a mixture with n-butane~~ of from 60 to 90% by volume of 1,3-butadiene and from 40 to 10% by volume of n-butane, the mixture prepared and preparing it by the following process steps:

- A) providing a feed gas stream a comprising the n-butane;
- B) feeding the feed gas stream a comprising the n-butane into at least one first dehydrogenation zone and nonoxidatively catalytically dehydrogenating the n-butane to obtain a first product gas stream b comprising n-butane, 1-butene, 2-butene, 1,3-butadiene, ~~steam~~, low-boiling secondary constituents and in some cases steam;
- C) feeding the product gas stream b of the nonoxidative catalytic dehydrogenation and an oxygenous gas into at least one second dehydrogenation zone and oxidatively dehydrogenating the 1-butene and the 2-butene to obtain a second product gas stream e comprising n-butane, 2-butene, 1,3-butadiene, hydrogen, low-boiling secondary constituents and steam, said second product gas stream e having a higher content of 1,3-butadiene than the first product gas stream b;
- D) removing ~~steam~~, the low-boiling secondary constituents and the steam to obtain a C₄ product gas stream d substantially consisting of n-butane, 2-butene and 1,3-butadiene;
- E) feeding the C₄ product gas stream d into a distillation zone and removing a 1,3-butadiene/n-butane mixture ~~as a product of value stream e~~.

2. (Original) The process according to claim 1, wherein the nonoxidative catalytic dehydrogenation of n-butane is carried out autothermally.

3. (Currently amended) The process according to claim 1 ~~or~~ 2, wherein the feed gas stream comprising n-butane is obtained from liquefied petroleum gas (LPG).

4. (Currently amended) The process according to ~~any of claims 1 to 3~~ claim 1, wherein the nickel(0) catalyst comprises phosphorus ligands which are selected from the group consisting of mono- or bidentate phosphines, phosphites, phosphinites, phosphonites and phosphinite phosphonites.

5. (New) The process according to claim 2, wherein the feed gas stream comprising n-butane is obtained from liquefied petroleum gas (LPG).